

**IN THE UNITED STATES DISTRICT COURT
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA
CHARLESTON DIVISION**

**OHIO VALLEY ENVIRONMENTAL
COALITION, WEST VIRGINIA
HIGHLANDS CONSERVANCY,
and SIERRA CLUB,**

Plaintiffs,

v.

**CIVIL ACTION NO. 2:13-21588
(Consolidated with 2:13-16044)**

FOLA COAL COMPANY, LLC,

Defendant.

PLAINTIFFS' POST-TRIAL REPLY BRIEF

Fola begins its post-trial memorandum by rearguing the issue of whether its permit condition requiring compliance with water quality standards is federally enforceable. Fola PT Mem. 1-3. This Court rejected that argument when it denied Fola's motion for summary judgment prior to trial, and that decision is the law of the case. Doc. 94 at 12.

In a related vein, Fola makes a new argument that enforcing its permits is unfair, because Fola supposedly could not have known at the time its 2008 NPDES permits were issued that the high conductivity it discharged could cause biological impairment. Fola PT Mem. at 2. That is incorrect. Dr. Palmer explained that the association between conductivity in mine water and downstream biological impairment was noted in the 2003 Programmatic Environmental Impact Statement on Mountaintop Mining/Valley Fills in Appalachia, in a 2004 paper by Kennedy, and in a 2005 paper by Hartman. Tr. 2:99-100. Furthermore, this Court heard expert trial testimony on this issue in 2006 and found in early 2007 that:

As a result of valley fills, the water chemistry changes, which affects the range of aquatic life. Valley fills increase the discharge of chemicals which are then carried downstream. While many discharges are regulated by water quality standards, some chemical changes associated with poorer water quality, such as conductivity, are not. The increased

chemical mix produced by valley fills reduces biodiversity, causing a shift toward pollution tolerant organisms. An EPA-directed aquatic impacts assessment concluded that sites with valley fills had “lower biotic integrity” and “reduced taxa richness” with “fewer pollution-sensitive EPT taxa.”

OVEC v. U.S. Army Corps of Engineers, 479 F. Supp. 2d 607, 637-38 (S.D. W.Va. 2007)

(footnotes and internal citations omitted), *rev’d*, 556 F.3d 177 (4th Cir. 2008). These are the same effects that OVEC has proven in this case, and they were apparent even prior to the issuance of Fola’s 2008 NPDES permits.

In any event, Fola’s argument is legally incorrect, for two reasons. First, as this Court stated in *OVEC v. Elk Run Coal Co.*, 2014 WL 29562, at *10 (S.D.W. Va. Jan. 3, 2014), “the permit condition and § 47-30-5.1.f. itself, are both unambiguous in imposing liability upon [permittees] in the event that they violate water quality standards through discharges under their permits,” and permittees “have had notice of the possibility of civil liability since the predecessor to § 47-30-5.1.f first became effective in 1985” or, at the least, since their permits were issued. Second, violations of NPDES permits are based on strict liability. *OVEC v. Maple Coal Co.*, 808 F. Supp. 2d 868, 900 (S.D.W. Va. 2011). A defendant’s good faith or lack of knowledge of the violations are irrelevant to liability. *Sierra Club v. Simkins Indus., Inc.*, 617 F. Supp. 1120, 1128 (D. Md. 1985), *aff’d*, 847 F.2d 1109 (4th Cir. 1988); *U.S. v. Harford Sands, Inc.*, 575 F. Supp. 733, 735 (D. Md. 1983) (Clean Air Act). “Willful or negligent violations of the [Clean Water] Act are separately punishable by criminal penalties under 33 U.S.C. § 1319(c)(1). The Act would be severely weakened if only intentional acts were proscribed.” *United States v. Earth Sciences, Inc.*, 599 F.2d 368, 374 (10th Cir. 1979). In short, “[e]xcuses are irrelevant; under the [Clean Water] Act the party must either achieve the discharge levels it has been allowed, or pay the consequences of its discharge, or stop discharging.” *United States v. City of Hoboken*, 675 F. Supp. 189, 198 (D.N.J. 1987).

We next turn to Fola's arguments regarding specific causation.

I. OVEC's Claims Concerning Fola Mine 4A Are Valid

A. OVEC Proved that Discharges from Outlets 022, 023 and 027 Materially Contribute to the Observed Downstream Impairment

Fola argues that OVEC's claims concerning its 4A Mine did not survive Fola's motion for a directed verdict because OVEC did not isolate the effects of discharges from Outlets 022, 023 and 027 from the effects of discharges from Fola's other upstream outlets. Fola Mem. 4-6. However, OVEC does not have to prove such facts. Fola seeks to impose a standard of strict "but-for" tort causation, *i.e.*, that impairment would not occur "but for" the discharges from Outlets 022, 023 and 027. That is not the law. Instead, OVEC need only show that the three outlets make a material contribution to the observed downstream impairment, which means that those outlets are "among some collection of material contributors." *OVEC v. Fola Coal Co. (Stillhouse)*, 2015 WL 362643, at *8 (S.D. W.Va. 2015). Fola does not dispute that those three outlets discharged over a half million gallons per day of mine water containing levels of conductivity far higher than 300 μ S/cm. See Pl. PT Br. 7, n.3. That is sufficient to show a material contribution.

B. OVEC Did Not Need to Rule Out Selenium as an Alternative Cause of Impairment and, in any Event, Selenium Does Not Negate the Material Contribution of Conductivity to Impairment

Fola makes the same type of legal error with respect to selenium, by arguing that OVEC's experts failed to isolate the effects of selenium discharges from conductivity discharges in determining the cause of downstream impairment in Right Fork at Mine 4A. Fola PT Mem. 6-8. As a legal matter, OVEC is not required to eliminate alternative causes to prove a violation of the West Virginia' narrative water quality standards for impairment. In the Fola Stillhouse case, this Court rejected that argument, stating that there was no "need for a differential diagnosis

ruling in the alleged cause and ruling out others.” *OVEC v. Fola Coal Co. (Stillhouse)*, 2015 WL 362643, at *8.

In addition, as a factual matter, a stream can be impaired for more than one pollutant. For example, WVDEP has listed the Right Fork of Leatherwood Creek as impaired for selenium and iron, as well as for not meeting biological conditions. JEX 20 at JE1067, JE1177 *see also*, JEX 16 at JE0568. This shows that WVDEP knows that a stream can be impaired for multiple pollutants. When it comes to determining the source of biological impairment in Right Fork, however, WVDEP noted that ionic toxicity was a “significant stressor” and did not mention selenium or iron as a source of stress to aquatic life. JEX 16 at JE0578.

Different aquatic life in the same stream can be impaired by different or multiple pollutants. As Dr. Palmer explained, all of the studies on selenium show that it causes abnormalities and reproductive issues for fish. Tr. 3:6-7. For example, the Hitt paper found fish assemblage composition is altered when selenium concentrations in a stream are between 4 and 7 µg/l. Tr. 3:22-23. According to EPA, however, the effect of selenium on benthic macroinvertebrates is unclear and has not been investigated. Tr. 3:26; JEX 17 at 41.

On the other hand, all of the studies on conductivity show that conductivity is harmful to benthic macroinvertebrates when it exceeds 300 µS/cm. Tr. 2:93-141. Thus, the fish in a stream can be impaired by selenium, and the benthic macroinvertebrates in that same stream can be impaired by conductivity. There are different effects of the different pollutants on different aquatic life. OVEC can challenge each pollutant and each adverse effect separately, and Fola cannot excuse its high conductivity discharges on the ground that the stream is already contaminated by a different pollutant that it also discharges. *Cf. PIRG v. Powell Duffryn Terminals, Inc.*, 720 F. Supp. 1158, 1167 (D.N.J. 1989) (“if the Court were to adopt defendant’s

view, . . . any permittee could ignore the requirements of its permit with impunity so long as it discharged into already heavily polluted waters”).

II. OVEC Has Proved Specific Causation

A. Fola’s Own Expert Conceded that Conductivity Is a Material Contributor

To prove a violation of West Virginia’s narrative standards, OVEC “need only provide evidence showing that it is more probable than not that ionic pollution as measured by conductivity is among some collection of material contributors.” *OVEC v. Fola (Stillhouse)*, 2015 WL 362643 at *8 (S.D. W.Va. Jan. 27, 2015). By arguing that a “material” contributor means a “significant” contributor, Fola implicitly concedes that OVEC does not have to show that conductivity is the sole or even the primary cause of impairment. Fola PT Mem. at 27-28.

Dr. Menzie, who was Fola’s only expert to address specific causation, conceded that conductivity is a material contributor to stream impairment in the Leatherwood tributaries. Tr. 3:240 (“[Conductivity is] going to play some role.”); Tr. 4:104 (“I include conductivity as a stressor along with that.”). Dr. Menzie repeatedly testified that conductivity was one of multiple factors interacting to cause the impairment of the Leatherwood streams. Tr. 4:76 (listing hydroxide and oxide precipitates, temperature and conductivity as the drivers of impairment); Tr. 4:98-100 (testifying that conductivity is one of three or four factors combining and interacting to cause the observed conditions); Tr. 4:105 (“I acknowledge that, that full suite of stressors was resulting in lower WVSCI scores”).

Dr. Menzie’s admissions are sufficient by themselves to find that conductivity is playing a material role in causing narrative water quality violations in the Leatherwood tributaries. Dr. Menzie admitted that the level of conductivity in those tributaries “more likely than not” has a physiological effect on the aquatic community, “particularly maybe some sensitive mayflies.”

Tr. 4:85. That proves a material contribution, because mayflies are a key component of the WVSCI score, and mayflies were absent at all three sites. Tr. 3:216; Tr. 2:162, 185, 190. Dr. Menzie also stated in his expert report that conductivity, habitat and temperature “all combine and interact to cause the observed conditions.” Tr. 4:98-99. Again, that proves a material contribution, because if three factors combine to produce an effect, none of the three factors can be deemed insignificant.

Contrary to Fola’s argument (Fola PT Mem. 27-28), under the lenient “material contribution” test, there is no need to assign weights to the contributing factors. That is only necessary under a strict tort causation analysis.¹ This Court has interpreted the “material contribution” test to mean that OVEC need only show that “conductivity is among some collection of material contributors.” *Fola (Stillhouse)*, 2015 WL 362643, at *8.

OVEC not only met that test, but exceeded it. Drs. Palmer and Baker explained why the levels of conductivity discharged by Fola at all three sites are the *most* significant factor causing impairment. *See* OVEC Trial Br. at 10-15, 17-19, Doc. 113. Moreover, WVDEP determined that ionic toxicity is a “significant stressor” in both Road Fork and Right Fork, and that “[a] strong presence of sulfates and other dissolved solids exists in those waters and in all other streams where ionic toxicity has been determined to be a significant biological stressor.” JEX 16 at JE0578. Thus, under Fola’s, OVEC’s, or WVDEP’s view of the evidence, conductivity is a materially contributing factor and Fola is liable for violating its permits.

¹ The Restatement (Second) of Torts “recognizes that concurrent forces may bring about a single harm, requiring weighing the contributing factors.” *Shyface v. Sec’y, Health & Human Servs.*, 165 F.3d 1344, 1352 (Fed. Cir. 1999). But that is only because, under tort principles, the plaintiff must prove “but for” causation. *See Restatement (Second) of Torts (Second)*, § 433 cmt. d; *Restatement (Third) of Torts, Phys. & Emot. Harm*, § 26 cmt i. That requirement does not apply here, where the standard for liability is more lenient and only requires a “material contribution.”

B. Fola's Criticisms of OVEC's Experts Are Unpersuasive

Fola's remaining arguments mostly amount to nitpicking and a demand for more scientific precision. Fola argues that OVEC cannot prevail because it did not quantify the degree of the contribution that conductivity makes to impairment, and what precise impact conductivity has on WVSCI scores. Fola PT Mem. at 10, 28. Fola cites no legal authority that requires this level of detailed causal analysis. As this Court has held, the preponderance of the evidence test does not require "scientific certainty," but only "legal sufficiency," and the fact "that science would require more evidence before conclusively considering the causation question resolved is irrelevant." *Fola (Stillhouse)*, 2015 WL 362643, at *17.

Fola argues that the temporal relationship between increased conductivity and increased impairment after its mining began at all three sites "provides absolutely no evidence of specific causation," because other changes also occurred during mining that can lead to impairment. Fola PT Mem. 9. However, Fola's expert, Dr. Menzie, did not identify a single scientific study that found that these other changes are likely to be either the general or the specific cause of impairment in Central Appalachian streams that have high conductivity. The five studies he relied on relate to non-Appalachian streams without high conductivity including a Finnish paper on iron precipitates, DE 185, and a paper from central Europe on the effects of ponds, DE 62. *See* OVEC PT Br. at 21. His own attempt to publish a paper on these subjects was rejected. Tr. 4:88-90. In contrast, OVEC's experts cited multiple peer-reviewed studies of Central Appalachian streams that have found that high conductivity is the most important cause of impairment, and that these other mining-related changes are unlikely to be the drivers of impairment. *Id.* at 22-23. Consequently, since that same pattern of high conductivity and impairment is shown to be present in the three Leatherwood tributaries, it is compelling evidence

of specific causation.

Fola's criticisms of OVEC's experts are similarly unpersuasive. Fola criticizes Dr. Swan for only examining a 100-foot reach in each stream, even though that is what the WVDEP protocol requires. Fola PT Mem. 11; Tr. 3:41. Fola criticizes Dr. Swan for not reaching a conclusion about the cause of impairment, even though OVEC did not ask him to do so and assigned that issue to Drs. Palmer and Baker. Tr. 3:34.

Fola argues that Dr. Baker offered "very little" evidence on specific causation. Fola PT Mem. 12. In doing so, Fola ignores crucial portions of Dr. Baker's testimony and mischaracterizes others. Dr. Baker began by reviewing the literature and then identifying patterns in the data. OVEC PT Br. at 11-12, Doc. 113. He found that only differences in conductivity consistently distinguished impaired streams from both unimpaired non-reference streams and reference streams. *Id.* at 12-13. He tested this observation through a formal causal analysis using the WVSCI dataset and found that conductivity, by itself, could be shown to have a causal relationship with stream impairment in mined watersheds, but that temperature and habitat could not. *Id.* at 14.

Dr. Baker then looked at site specific data from Leatherwood Creek and compared it to conditions of reference streams, unimpaired non-reference streams and impaired streams. *Id.* at 13-14. He found that while the temperatures and habitat at the Leatherwood sites were similar to conditions present in unimpaired streams, the conductivities measured at those sites were vastly different. *Id.* Dr. Baker then went to the Leatherwood tributaries to observe the conditions in person and noted that he agreed with Dr. Swan's analysis of habitat and, more importantly, that habitat was of sufficient quality to support macroinvertebrates. *Id.* Lastly, Dr. Baker examined the particular taxa of macroinvertebrates found pre-and post-mining at the Leatherwood sites and

found that the pattern of biological change matched the change established in the literature for the effects of high conductivity. *Id.* at 15.

Unlike Dr. Manzie, Dr. Baker used a consistent methodology to compare the effects of conductivity with the effects of habitat and temperature—comparing each stressor to the conditions of impaired streams, unimpaired non-reference streams, and reference streams from a subset of the West Virginia dataset that he filtered to remove confounding factors. *See* PEX 61-64. As Dr. Baker explained, stream organisms are adapted to the range of conditions they experience over their evolutionary history. Tr. 3:139. The further that site conditions diverge from reference conditions, the more likely it is that organisms will be negatively impacted, because they are exposed to a novel condition to which they are not adapted. *Id.* at 139-40. The divergence between reference conditions and conductivity levels in the Leatherwood sites is extreme, while there is only a small divergence, if any, with habitat and temperature. *Id.* at 138-40. This was a key part of Dr. Baker's specific causation analysis, which Dr. Menzie ignored entirely.

Fola also criticizes Dr. Baker's analysis of the macroinvertebrate makeup at the Leatherwood sites, arguing that only poor habitat conditions could explain a decline in the total abundance of insects. Fola PT Mem. at 14-15. However, Dr. Baker testified that mayflies are the most sensitive insects to high conductivity and are the predominant taxa in most Appalachian streams, making up approximately 25-50 percent of the total macroinvertebrate abundance. Tr. 3:162-64. Consequently, the elimination of mayflies due to high conductivity would be expected to cause a large reduction in overall abundance, and that is what was found at these sites. Fola's argument also improperly focuses on overall abundance rather than the abundance of specific taxa. Dr. Baker stated that the complete loss of all mayflies at all three sites can only be

explained by conductivity, not by temperature or habitat. Tr: 3:168.

Fola attacks Dr. Palmer's credibility and qualifications, and her failure to visit the sites. Fola PT Mem. at 16-19. This Court has twice found Dr. Palmer's testimony on the causal linkage between surface mining, conductivity, and biological impairment to be "highly persuasive" and unbiased. *Elk Run*, 24 F. Supp. 2d at 561-62, 571; *Fola (Stillhouse)*, 2015 WL 362643 at *17. The Court has also rejected the "insinuation that [Dr. Palmer's] testimony . . . should not be credited simply because [she] did not visit the sites in person." *Elk Run*, 24 F. Supp. 2d at 569, n. 38. Dr. Palmer reasonably relied on the site information gathered by Dr. Swan, who followed WVDEP's protocols for habitat assessment and benthic macroinvertebrate sampling.

Fola claims that Dr. Palmer admitted that nothing in the 2008, 2010, or 2014 Pond studies supports a causal connection between conductivity and impairment, and that those studies instead support a strong correlation between habitat and impairment. Fola PT Mem. at 17. This argument relates to the general causation issue, on which this Court has ruled in OVEC's favor. In any event, Dr. Palmer explained on redirect that all of those studies found a stronger relationship between conductivity and impairment than between habitat and impairment. Tr: 3:9-14. Fola also places special emphasis on a statement in the Pond's 2008 study that metal hydroxide precipitates could impair benthic habitat, but Dr. Palmer dismissed that possibility as "purely speculative." Fola PT Mem. at 18; Tr: 2:215.

Fola argues that Dr. Palmer could not discount habitat as the prime causal factor in Leatherwood Creek streams based solely on RBP scores compiled by Dr. Swan, because the RBP is too coarse a measure of habitat quality. Fola PT Mem. 19. However, Dr. Palmer explained that she had done "extensive work myself showing that if there are water chemistry

problems, it doesn't matter typically how good the habitat is; the factor that will trump all other things is going to be that chemistry." Tr. 2:160. The 2008 Pond study directly supports that conclusion as applied to Appalachian streams impacted by coal mining. Tr. 3:13 (Pond found "only weak relationships between mayfly metrics and RBP habitat parameters downstream of mined Central Appalachian headwaters in West Virginia"). In addition, Dr. Palmer cited studies showing that embeddedness and precipitates do not confound the strong relationship between conductivity and impairment in those waters. Tr. 2:128-29, 131.

Finally, Fola's brief ignores one of the most compelling pieces of evidence of specific causation—the 2013 Kunz study and the absence of mayflies at all three Leatherwood sites. In that study, Kunz exposed a relatively tolerant mayfly that is native to Appalachian streams to an ionic mixture of reconstituted mine water that is "characteristic of mountaintop mining-impacted streams" and found toxicity to that mayfly at a conductivity of 1090 $\mu\text{S}/\text{cm}$. PEX 173 at JE0160; Tr. 2:137-40. Dr. Palmer testified that the water discharged by Fola at all three Leatherwood sites has a similar ionic composition and a much higher conductivity, consistently in the 2000-3000 $\mu\text{S}/\text{cm}$ range—two to three times higher than the level in the Kunz study. Tr. 2:156-57, 181-84, 192-93. No mayflies were found at any of the three Leatherwood sites, and that absence drove the WVSCI scores into the impaired category. PEX 25-26; Tr. 2:162, 185; Tr. 3:162-64. According to Dr. Palmer, the exposure levels at each site are sufficient to cause the observed impairment. Tr. 3:15-16. Even Dr. Menzie admitted that the Kunz study was "one of the reasons why I've formed the opinion I have . . . that I believe that influences on organisms might have influences on WVSCI scores occur[ring] in a range of about 1,000 to 3,000 microsiemens." Tr. 4:146. Dr. Menzie did not claim that ponds, temperature and habitat could explain the complete absence of mayflies at these sites. Indeed, he admitted that it is "more likely than not"

that the high conductivity in the three streams harms mayflies. Tr. 4:185. Dr. Baker testified that conductivity is the “only one variable that we’ve looked at that would explain this pattern [of mayfly taxa loss] across all of the sites.” Tr. 3:168. Fola simply has no credible alternative explanation for the absence of mayflies, and that absence clearly supports a finding of specific causation in this case.

Conclusion

For these reasons, the Court should enter a declaratory judgment finding Fola liable for violating its CWA and SMCRA permits.

Respectfully submitted,

/s/ J. Michael Becher

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CERTIFICATE OF SERVICE

I, J. Michael Becher, hereby certify that on July 13, 2015, I served a true and correct copy of the foregoing Plaintiffs' Post-Trial Reply Brief through CM/ECF, which will provide electronic notification to all parties.

/s/ J. Michael Becher
J. Michael Becher